

## Lockheed AIRCRAFT CORPORATION

CALIFORNIA DIVISION

JP-150 MISSION

It is of interest to determine the effect upon airplane performance of using only hydrocarbon fuel. Flight testing of airframe, engine and equipment and crew training as well as some tactical missions can be conducted on a more economical basis with the less exotic fuel.

To accomplish the identical mission radius of the HEF equipped airplane requires a fuel load of 52,540 pounds with a take-off weight of 85,940 pounds. These numbers are 6,540 pounds greater than the HEF equipped airplane. However, the basic airframe will accommodate the greater weight of fuel at the lesser average density because sufficient fuselage diameter and length have already been established by payload and balance considerations.

The increased take-off weight results in a take-off ground run of 3,100 feet. The landing weight is not affected so that the landing distance remains 2,800 feet. The initial penetration altitude is reduced 1,500 feet and the target altitude is reduced 800 feet, also by virtue of the increased flight weight. The performance is otherwise unaffected by the sole use of JP-150 fuel.

It is noted at this point that the use of JP-150 exclusively does not show up to be as much of a disadvantage as might at first be expected. This comes about because the fuselage size and length required by payload and balance requirements can hold more fuel than is compatible with attaining

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JP-150 MISSION (cont.)

the highest possible altitude at a 2,000 n.mi. radius using the HEF fuel combination. It therefore appears that the basic airplane (Ref. Figure 1 in "Performance Section") could be overloaded with an HEF fuel combination of 52,540 lbs. With this overload of fuel the mission radius will improve to approximately 2,250 n.mi. with about the same altitude profile as attained with JP-150 fuel alone.